



HEM-F

Mapping of river network modifications and flood effects

Charles University in Prague, Faculty of Science, Department of Physical Geography and Geoecology

Segment ID	
Length of segment (m)	
Stream name	
Surveyor	
Date, time	

Stream segment morphometry

Dimensions		Minimum	Maximum			
Width of water level (m)						
Width of stream channel(m)						
Width of floodplain - left bank (m)						
Width of floodplain - right bank (m)						
Valley type (check)	Canyon	V shape	U shape	Terraced	Asymmetric	Flat

Stream route

Stream route	Predominant type	Signs of channelization	Historical status
Braided			
Branched			
Meandering			
Sinuuous			
Straight			

Longitudinal continuity of stream

Character of barriers in stream channel	Number of occurrences
Reach with no barriers	
Low steps with the height < 0.5 m	
Step or weir with the height < 1 m	
Step or weir with the height > 1 m	
Glide	
Weir with fish passage	
Dam/dike	

Stream channel depth variation

Stream channel depth modification type	Extent %	Artificially heightened	Artificially lowered
0-20 cm			
20-50 cm			
50 cm – 1 m			
1-2 m			
2-4 m			
> 4 m			

Cross profile depth variation

Character of variation	Extent %
High	
Moderate	
Naturally low	
Low due to channel modifications	

Stream bed structure variation

Stream bed structure types	Extent %
No stream bed structures observed	
Berns	
Islands	
Shoals	
Pools	
Riffles	
Rock steps	

Stream bed substrate

Stream bed substrate type	Extent %
Bedrock	
Cobbles and boulders (>256 mm)	
Pebbles (64-256 mm)	
Gravel (2-64 mm)	
Sand (0.06-2 mm)	
Silt / clay (<0.006 mm)	
Peat	
Artificial substrate	

Stream bed modifications

Character of stream bed modifications	Extent %
No signs of modifications	
Stone pavement	
Concrete reinforcement	
Culvert	
Stream piping, covering	
Artificial deepening of the bed	
Sediments and artificial substrate adding	

Woody and leafy debris

Woody debris and leafy debris occurrence	Number of occurrences	Extent %
Woody debris in stream channel		
Leafy debris in stream channel		

Bank modifications

Character of bank modifications	Extent %	
	Left bank	Right bank
Bank with no signs of modifications		
Vegetation reinforcement		
Gabions		
Semi-vegetation slabs		
Stone rip-rap		
Stone block paving		
Concrete reinforcement		
Contiguous modification of the profile		

Bank vegetation

<i>Predominant character of bank vegetation</i>	<i>Extent %</i>	
	<i>Left bank</i>	<i>Right bank</i>
Natural forest		
Production forest		
Gallery vegetation		
Interrupted vegetation belts		
Single trees, shrubs		
High plants		
Banks without vegetation		

Riparian zone land use

<i>Character of the riparian zone (up to 50 m from stream) land use</i>	<i>Extent %</i>	
	<i>Left bank</i>	<i>Right bank</i>
Forest		
Meadow		
Pasture land		
Water areas		
Agricultural land		
Scattered housing		
Urban area, industry		

Floodplain land use

<i>Character of the floodplain land use</i>	<i>Extent %</i>	
	<i>Left bank</i>	<i>Right bank</i>
Forest		
Meadow		
Pasture land		
Water areas		
Agricultural land		
Scattered housing		
Urban area, industry		

Character of flow

<i>Character of flow</i>	<i>Extent %</i>
Waterfall	
Steps, cascade	
Riffles	
Run	
Glide	
Pools	
Impoundment	

Hydrological regime modifications

<i>Artificially modified discharge</i>	<i>Extent %</i>
Dynamics without changes	
Periodic impoundment	
Permanent impoundment / discharge regulation	
Water abstraction / discharge	

Continuity of floodplain

<i>Type of structure in floodplain</i>		<i>Number of occurrences</i>	
		<i>Left bank</i>	<i>Right bank</i>
Structures crossing floodplain (#)			
Flood control dikes parallel to stream (%)			
Embankments parallel to stream (%)			

Flood spill

<i>Character of the flood spill</i>	<i>Extent %</i>
Water did not left the channel	
Flood spill inside flood control dikes	
Flood spill in riparian zone – shallow (< 1 m)	
Flood spill in riparian zone – deep (1 m +)	
Flood spill in floodplain – shallow (< 1 m)	
Flood spill in floodplain – deep (1 m +)	

Geomorphic effects of flooding

<i>Effects in river channel</i>	<i>Number of occurrences</i>
Stream route displacement	
Small fluvial accumulations in river channel	
Large fluvial accumulations in river channel	
Destruction / derogation of bridge	
Destruction / derogation of weir	

<i>Effects in riparian zone and floodplain</i>	<i>Number of occurrences</i>	
	<i>Left bank</i>	<i>Right bank</i>
No evidences		
Small bank cavings		
Large bank cavings		
Large erosion in floodplain		
Small fluvial accumulations in rip. belt		
Large fluvial accumulations in rip. belt		
Small fluvial accumulations in floodplain		
Large fluvial accumulations in floodplain		
Displacement of boulders or blocks		
Destruction / derogation of buildings on the bank		
Destruction / derogation of buildings in riparian zone		
Destruction / derogation of buildings in floodplain		
Destruction / derogation of roads		
Destruction / derogation of railway		
Rupture / destruction of dike/ dam		

Flood control measures

<i>Flood control measures</i>	<i>Number of occurrences</i>	
	<i>Left bank</i>	<i>Right bank</i>
Flood control dike		
Mobile flood control dike		
Extension of capacity of the channel		
Polder		
Abandoned meander		
Riparian forest		
Wetland, peat bog		
Space for safe flood spill		
Zone of high flood protection priority		

Potential obstacles to flood course

<i>Obstacle type</i>	<i>Number of occurrences</i>	
	<i>Left bank</i>	<i>Right bank</i>
Insufficiently designed bridge		
Obstacle in the stream channel		
Lowered capacity of the stream		
Narrowing of the floodplain		
Improperly located buildings on bank		
Improper consequence of stream route modifications		
Other (describe in notes)		